

# *ADVANCED COMMUNICATIONS TECHNOLOGY*

## Mobile Communications Requirements Report

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## 1. EXECUTIVE SUMMARY

The Coast Guard's mobile communications requirements will outstrip existing system capabilities, available capacity, and affordability by the late 1990s. This will require changes in the mix of mobile communications equipment and services used by operational units. New commercial mobile satellite services are available now, with many others arriving on the market between 1998 and 2003. These new services present unique opportunities to satisfy mission requirements, reduce investment in communications infrastructure, and realize more cost-effective communications services.

The Coast Guard Research and Development Center (R&DC) has undertaken an effort to identify and evaluate current and emerging satellite services that may be used to satisfy Coast Guard mobile communications requirements. As part of this effort, Anteon Corporation has been tasked by R&DC to collect the mobile communications functional requirements that have been identified by program managers. Anteon analysts have reviewed the Government Furnished Information (GFI) and researched other related documentation to identify and collect the requirements that may be used to describe the needed operating environment.

Anteon analysts assessed the functional requirements to develop system requirements that describe the features that a communications system must provide to support the functional requirements. This report presents the current and projected Coast Guard mobile communications system requirements. System requirements derived from this analysis are displayed in Tables 4-1 through 4-5. The functional requirements are shown in Appendix A. Appendix B displays which system requirements support each of the functional requirements. Appendix C lists the system requirements with each of the functional requirements that they support. Appendix D is a matrix of the Mission Essential Applications (MEAs) and the afloat unit access requirements for these applications.

## 2. INTRODUCTION

### 2.1 Purpose

The purpose of this report is to identify and present the Coast Guard's current and projected mobile communications requirements.

### 2.2 Background

The Coast Guard's mobile communications requirements will outstrip existing high frequency (HF), DoD military satellite (MILSATCOM) and Inmarsat A and C system capabilities, available capacity and affordability by the late 1990s. This will require changes in the mix of mobile communications equipment and services used by Coast Guard operational units. New commercial mobile satellite services are available now, with many others arriving on the market between 1998 and 2003. These new services present unique opportunities to satisfy mission requirements, reduce Coast Guard investment in communications infrastructure, and realize more cost-effective communications services.



The R&DC has undertaken an effort to identify and evaluate current and emerging satellite services that may be used to satisfy Coast Guard mobile communications requirements. As part of this effort, Anteon Corporation has been tasked by R&DC to collect the mobile communications requirements that have been identified by program managers. Anteon analysts have reviewed the GFI and researched other related documentation to identify and collect the requirements that may be used to describe the needed operating environment.

### 2.3 Scope

This report describes the effort accomplished to identify and collect Coast Guard mobile communications requirements and lists the requirements in the appendices.

### 3. METHODOLOGY

The effort to collect Coast Guard mobile communications requirements was divided into three phases:

- (1) collection of functional requirements developed by Coast Guard program managers and documented by the GFI;
- (2) interviews of G-OCC and G-SCT staffs to ensure that all mobile communications requirements have been identified; and
- (3) development of system requirements to describe a system that will satisfy the functional requirements.

#### ***3.1 Functional Requirements***

The functional requirements define the communication needs of the various Coast Guard programs. These requirements were culled from documents already written. All of these documents were provided as GFI. The future cutter document and Coast Guard requirements database were recommended during the meeting with G-SCT and G-OCC personnel at Coast Guard Headquarters. The reference documents are listed with abbreviated titles below. For more details, refer to Section 6.

- USCG C4I Baseline Architecture
- USCG C4I Objective Architecture and Transition Plan
- Draft Coast Guard Telecommunications Plan
- National Distress System Preliminary Operational Requirements Document
- Draft Deepwater Functional Capability Statement
- USCG/Naval Operational Capabilities for the Future USCG Cutter
- Database of Coast Guard Requirements

#### ***3.2 Assessment of Current and Planned Information Systems***

G-OCC developed an information system to track functional requirements provided by various Coast Guard program managers. Part of this information system is a database of functional requirements developed in Microsoft Access. The source for the requirements currently in the database is reference (a), the USCG C4I Baseline Architecture. There are 447 records in the database. Anteon analysts reviewed the content of the database and queried the database to extract 93 requirements that related to communications. They are included in the list of communications functional requirements (Appendix A).

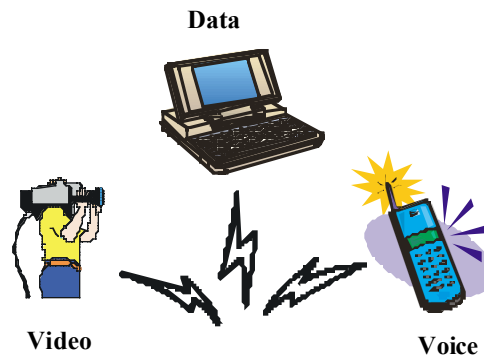
#### ***3.3 Interviews With G-OCC and G-SCT***



On February 19, 1998, a meeting was held with G-OCC staff, G-SCT staff, and Anteon analysts to ensure that all current and future mobile communications requirements were identified. During this meeting several programs were discussed that may impact the list of functional requirements. These programs were the Integrated Deepwater System and the USCG/Naval Operational Capabilities for the Future USCG Cutter. Upon review of the requirements documents for these projects, a few new distinct functional requirements were added to the master list. There was considerable overlap among all sources and the main analysis objective was to find requirements not already included in the list (Appendix A).

### 3.4 System Requirements

The system requirements describe a system that will satisfy the functional requirements. For each functional requirement, an assessment was made to determine what generic system requirement supports that function. Generally, several system requirements are required for each functional requirement. The system requirements specify such things as the areas where coverage is required and the type of service needed (i.e., clear and secure voice, data, video, and imaging). The derived system requirements are listed in Tables 4-1 through 4-5. Appendix C lists the system requirements. Under each system requirement is listed the functional requirements that the system requirement supports.



### 3.5 Database

A database of the requirements was developed in Microsoft Access. The database tables include the functional requirements, the system requirements, a link between the functional requirements and the OCC database, a link between the system requirements and the functional requirements, queries and reports. The links are included so that any requirement can be traced to its source or its destination.








## 4. ANALYSIS

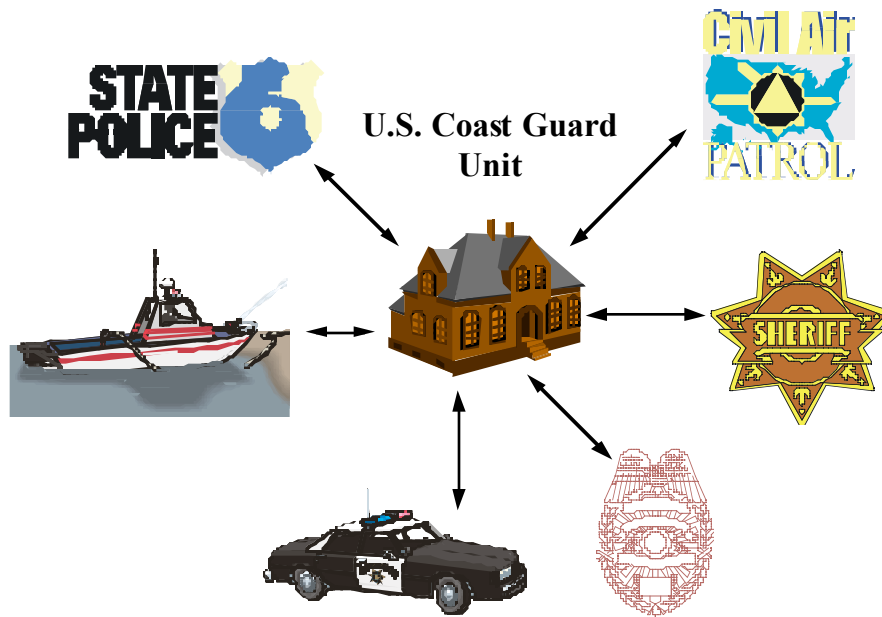
Each functional requirement was analyzed to determine what a system would have to provide for communications to support the functional requirement. The following assumptions were made:

- The system being specified is a satellite or similar system to be installed in Coast Guard aircraft, cutters, boats, vehicles, or a transportable communications central (TCC).
- It is not necessary to show any requirements for specific types of traffic, such as command and control, distress, or law enforcement, to be passed over the system.

The applicability of each system requirement to unit type was identified. This was necessary because different unit types have different operational requirements. The units are:

-  AC—Coast Guard aircraft (H-60, H-65, HU-25, & C-130)
-  MC—Major Coast Guard cutters (378s, 270s, & 210s)
-  OC—Other Coast Guard cutters
-  BTs—Coast Guard boats (MLBs & UTBs)
-  Vhc—Coast Guard vehicle

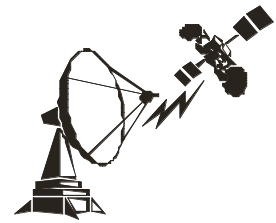
To determine which system requirements were needed to support a functional requirement, the functional requirement was examined to identify the communications elements that were necessary to complete the function. For example, if the information necessary to accomplish the function was classified, then a system requirement would be to provide for the transmission and reception of encrypted information at a specific classification. Or, if the functional requirement required communications with other government agencies, the system requirement would be to provide interoperability with other agencies and services. Mission Essential Applications (MEAs) were considered during the process to determine the system requirements needed to support the functional requirements. Appendix D provides a list of MEAs and the cutter classes which will use the MEAs.



### Government Interoperability

All of the system requirements are listed in Tables 4-1 through 4-5, on the following pages. The requirements are listed, as applicable, under the categories of Communications, Secure Communications, Capabilities, Maintainability, and Recording and Retrieval. An “X” marked under a unit type indicates that the system requirement is applicable to that type of mobile unit.

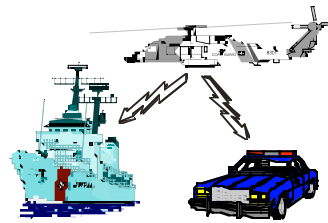


**Table 4-1: Communications Requirements**

ID Nr.	Requiements	AC	MC	OC	BTs	Vhc
1	Provide communications with the INTERNET, on-line services, and Coast Guard INTRANET.	X	X	X		
2	Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTAs MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.	X	X	X	X	X
3	Provide remote access to the system, through dial-up lines for voice and data.	X	X	X	X	X
4	Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.	X	X	X	X	X
5	The system must be available 99.95 percent of the time.	X	X	X	X	X
6	Provide communications from any geographic area the Coast Guard may operate in.	X	X	X	X	X
7	Provide real-time communications.	X	X	X	X	X
8	Allow for the automatic routing and delivery of traffic, regardless of content or mode (voice, data, video, or imagery), without human intervention.	X	X	X	X	X
9	The system should support communications across all mission areas.	X	X	X	X	X
10	Be capable of logging into and communicating with data networks.	X	X	X	X	X
11	Provide communications for accessing, searching and querying databases.	X	X	X	X	X

**Table 4-2: Secure Communications Requirements**

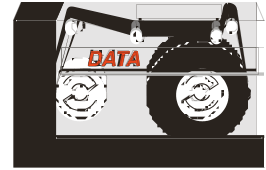
ID Nr.	Requiements	AC	MC	OC	BTs	Vhc
1	Provide for the transmission and reception of encrypted information up to the TOP SECRET level.		X			
2	Provide for the transmission and reception of encrypted information up to the SECRET level.	X	X	X		
3	Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.	X	X	X	X	
4	Provide for the transmission and reception of sensitive but unclassified information.	X	X	X	X	X

**Table 4-3: Capabilities Requirements**

ID Nr.	Requirements	AC	MC	OC	BTs	Vhc
1	Provide interoperability with other agencies and services.	X	X	X	X	X
2	Provide global communications for command and control of mobile units and administrative traffic.	X	X	X	X	X
3	Provide interoperability with DOD Command, Control, Communication, Intelligence, Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4SR). (Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (DAMA) compatible)	X	X	X		
4	Be capable of passing large amounts of data, such as video or graphics files, rapidly.	X	X	X		
5	The system should operate in all Coast Guard mobile resources, such as aircraft, cutters, boats, and vehicles.	X	X	X	X	X
6	Provide standard interface for connection to existing/planned information processing equipment for data transfer.	X	X	X	X	X
7	Provide voice, data, and video capability.	X	X	X	A	A
8	Provide imaging capability.	X	X	X		
9	Provide teleconferencing capability.		X	X		
Note A: Voice and data capability are required for boats and vehicles. Video capability is not required.						

**Table 4-4: Maintainability Requirements**

ID Nr.	Requirements	AC	MC	OC	BTs	Vhc
1	The system must be maintainable by Coast Guard maintenance personnel while underway in ships. Coast Guard or Contractor personnel may be used at other maintenance facilities.	X	X	X	X	X
2	The system should provide self diagnostics.	X	X	X	X	X

*Table 4-5: Recording and Retrieval Requirements*

ID Nr.	Requirements	AC	MC	OC	BTs	Vhc.
1	Maintain a record of user's time (metered services).	X	X	X		

## **5. RECOMMENDATIONS AND CONCLUSIONS**

The system requirements, listed in Section 4, are recommended as the requirements for mobile communications. All mobile units do not have the same requirements; therefore, the system requirements list specifies which type of unit is applicable for each system requirement. The system requirements describe the characteristics that the system must have to satisfy the functional requirements. If relaxing a system requirement is being considered, the supported functional requirements should be assessed for potential impact.

The system requirements from Section 4 are recommended to be used as a Coast Guard baseline for the evaluation of candidate mobile communications systems.

## 6. REFERENCES

- a) USCG C4I Baseline Architecture, June 14, 1996
- b) USCG C4I Objective Architecture and Transition Plan, September 15, 1997
- c) Draft Coast Guard Telecommunications Plan, February, 1998
- d) National Distress System Preliminary Operational Requirements Document, November 19, 1997
- e) Draft Deepwater Functional Capability Statement, April 1, 1997
- f) USCG/Naval Operational Capabilities for the Future U.S. Coast Guard Cutter, October 1, 1997
- g) Database of Coast Guard Requirements, Commandant, U.S. Coast Guard, G-OCC

## **APPENDIX A - Functional Requirements**

This appendix lists the functional requirements that define the communication needs of the various Coast Guard programs. These requirements were culled from documents already written. Five of these documents were provided as GFI and are listed in paragraph 6 as references (a) through (e). Another source of functional requirements was reference (f), the USCG/Naval Operational Capabilities for the Future U.S. Coast Guard Cutter. Each functional requirement can be traced back to the originating requirements documented in the Anteon database.

<b>ID No.</b>	<b>Requirements</b>
<b>37</b>	<b>Telecomm interoperability with other agencies</b>  Provide telecommunications interoperability with other agencies, particularly in a secure mode
<b>38</b>	<b>Effective C2 support in coastal areas</b>  Provide effective command and control support in coastal areas and navigable waterways where commercial or recreational traffic exists.
<b>39</b>	<b>Long and short range communications</b>  Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment
<b>40</b>	<b>Low-end C3I networks</b>  Provide low-end C3I networks (UNCLAS, short-range, small-platform) to effectively interface to high-end network (secure, long-range, large-platform) so as to enable the most effective use of limited resources
<b>41</b>	<b>Tactical Information network</b>  Provide an automated tactical information network which is compatible between ships, shore facilities and aircraft (down link from aircraft to ship/shore).
<b>42</b>	<b>MEP C2 system</b>  Develop and institutionalize a more effective command and control system, including supporting databases(s), particularly for large-scale national responses.

ID No.	Requirements
43	<b>Secure communications with other agencies</b>  Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).
44	<b>Multiple operation response</b>  Be able to effectively respond to crisis operations and provide sufficient voice channels and data communications capacity to support multiple operations in coastal areas and waterways
45	<b>Monitoring/compliance data</b>  Provide the capability to collect and disseminate environmental monitoring/compliance data in real-time from/to operating forces and mariners
46	<b>Share or link aircraft sensors</b>  Provide the ability to directly share/link aircraft sensors or the information from these sensors with other aircraft, with cutters and with shore stations.
47	<b>Dedicated satellite channel</b>  Provide a dedicated satellite channel for CG operations.
48	<b>Boarding team communications</b>  Provide all boarding teams with effective communications and decision support capabilities.
49	<b>Coordinate counterdrug activities</b>  Coordinate counterdrug activities with appropriate, involved US agencies to ensure a smooth interface between maritime air, maritime sea and land counterdrug detection, tracking, interdiction, and apprehension forces.
50	<b>DAMA configuration for MILSATCOM</b>  MILSATCOM equipped units are to be DAMA configured by 30 Sept 96 to conform to DOD mandated standard.
51	<b>Share CG LE information with other agencies</b>  Effectively share CG LE related information with other agencies,



<b>ID No.</b>	<b>Requirements</b>
	including directly with their support systems
<b>52</b>	<b>Bulk data transactions</b>  Provide the capability to conduct bulk data transactions for both operational and administrative support information with no impact on personnel in terms of network operations and manpower required.
<b>53</b>	<b>Logistics support actions</b>  Be able to effectively carry out logistics support actions with facilities ashore from mobile platforms, such as ships at sea (WLMs and larger).
<b>54</b>	<b>Exchange text, data and graphics</b>  Provide the ability to exchange text, data and graphics information with other government agencies
<b>55</b>	<b>Protected data communications</b>  Provide reliable, responsive (high speed) and protected data communications between the Operations Support Center and Cutters/Aircraft.
<b>56</b>	<b>Secure video-teleconferencing compatibility</b>  Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).
<b>57</b>	<b>Low probability of intercept/detection</b>  Requirement for low probability of intercept/detection communications for support of operations (including SATCOM systems).
<b>59</b>	<b>Access supporting data</b>  Requirement for operating units to be able to immediately access accurate supporting data, including Operations Center source information and information available in remote databases (i.e. data about a target or case and METOC data) while operations are in progress.
<b>60</b>	<b>OSC to OC communications</b>  Provide a link between the Operational Commander and the On Scene Commander, enabling the exchange of information required to define targets-of-interest versus targets which are not of interest.
<b>61</b>	<b>All mode communications</b>

ID No.	Requirements
	Provide communications in real or near real time, in all modes (voice, data, and video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting counter drug operations.
62	<b>Data link</b>  Provide a data link for transmission of sensor, voice, tactical display, and record traffic between the Operational Commander and the On Scene Commander as well as other friendly forces in near real time
63	<b>Monitoring by CTU</b>  Requirement for the Commander Task Unit (CTU) to monitor, track, and coordinate activities of other Coast Guard and friendly assets, both air and surface.
64	<b>Monitoring search and rescue unit</b>  Requirement to conduct on scene commander (OSC) functions, including coordination of search and rescue unit (SRU) response, monitoring of SRU performance, adaptation of the SAR action plan to on scene conditions and incident developments, and communicating with the SAR mission coordinator in real time
65	<b>Communicate with CG resources and agencies</b>  Provide communications in real or near real time, in all modes (voice, data, and video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting operations.
66	<b>Off shore voice communications</b>  Provide two-way voice communications, up to seven hundred nautical miles offshore, between embarked Ice Reconnaissance Detachment (IceRecDet) and the International Ice Patrol Headquarters.
67	<b>Offshore voice and data communications</b>  Provide two-way communications (voice and data) in real time, up to six hundred miles offshore, between the embarked National Data Buoy Center (NDBC) field team and the NDBC data analysts located at Stennis Space Center, Bay St. Louis, Miss.
68	<b>Interoperability with DOD</b>  Requirement to be interoperable with DOD forces including C4I and intelligence processing systems that are compatible with DOD forces

<b>ID No.</b>	<b>Requirements</b>
<b>69</b>	<b>Multinational operations</b>  Requirement to exercise command and control of own unit operations and multinational operations (CG, DOD, NATO, and similar coalitions) using a real time data link geographic/tactical display.
<b>70</b>	<b>Military communications</b>  Requirement to communicate with own service units, DOD resources, NATO forces, and other federal agencies by voice or data, secure and clear in real or near real time.
<b>71</b>	<b>Aircraft control unit communications</b>  Provide equipment to perform Aircraft Control Unit (ACU) duties for aircraft involved in Anti-Surface Warfare operations.
<b>72</b>	<b>C2 support</b>  Provide C2 support for embarked staff without negatively impacting unit's independent communications, and command and control functions.
<b>73</b>	<b>Intelligence communications</b>  Requirement to collect, process, and disseminate all source intelligence to collection centers/command centers.
<b>74</b>	<b>Pollution reports</b>  Requirement to receive reports of possible pollution incidents in near real time, analyze data, and investigate on scene conditions.
<b>75</b>	<b>MEP response</b>  Requirement to conduct On Scene Coordinator functions, including determining appropriate response to pollution incidents and coordinating the operations of on scene assets
<b>76</b>	<b>C2 for FOSC staff</b>  Provide C2 support for the FOSC (Federal On Scene Coordinator) staff without negatively impacting unit independent communications, command and control functions.
<b>77</b>	<b>Aircraft communications with surface units</b>  Requirement for air assets to be able to provide operational and tactical information to surface LE patrol units

ID No.	Requirements
78	<b>SAR on scene commander</b>  Requirement to provide the command and control capability to act as Search and Rescue On Scene Commander.
79	<b>SAR communications support</b>  Provide SAR communications support for tactical surface, submarine, and air units.
80	<b>Harbor and safety/security zone control</b>  Requirement to have necessary communications to support harbor and safety/security zone control.
81	<b>Coordinate MEP activities</b>  Requirement to coordinate activities of all CG/non-CG organizations responding to a spill incident.
82	<b>Tactical communications support</b>  Provide communications support for tactical surface, submarine and air units to support Naval Warfare.
83	<b>C-130 communications</b>  Requirement for C-130s to provide airborne capability to relay command and control communications to strategic forces in support of Naval Warfare.
84	<b>Secure communications</b>  Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.
85	<b>Communications in lightering zones</b>  Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local agencies and the maritime public while on-scene in lightering zones.
86	<b>CVS communications</b>  Requirement to transmit and receive documents/data between on-scene units and command centers in near real time.
87	<b>Voice privacy and secure voice capability</b>

<b>ID No.</b>	<b>Requirements</b>
	Requirement for a significant increase in voice privacy and secure voice capability
<b>88</b>	<b>Alerting aircraft and vessels</b>  Organize methods of alerting aircraft and vessels, and of obtaining ship position information in maritime areas.
<b>89</b>	<b>SAR coordination</b>  Ability to coordinate joint SAR operations with adjacent national and foreign areas
<b>90</b>	<b>SAR support services</b>  Ability to coordinate support services (refueling and servicing of aircraft, vessels, and vehicles engaged in SAR).
<b>91</b>	<b>World wide SAR coordination</b>  Ability to coordinate U.S. involvement in a maritime SAR case regardless of where in the world that case occurs.
<b>92</b>	<b>Centralized SAR control</b>  Ability to carry out centralized control, coordination, and effective use of all available SAR facilities.
<b>93</b>	<b>Organize SAR communications</b>  Ability to organize SAR mission communications including assignment of control channels, monitor channels, and call signs.
<b>94</b>	<b>SAR coordination</b>  Ability to coordinate with accident investigation boards, medical teams, aircraft operators, and merchant vessel agents
<b>95</b>	<b>Gather essential information</b>  Ability to gather essential information including notices to mariners, distressed craft movements, and records/photographs of all unremoved and unobliterated aircraft or vessel wreckage.
<b>96</b>	<b>Record SAR information</b>  Ability to record information on SAR system efficiency, SAR mission critiques, emergency procedures, survival equipment carried by aircraft and vessels, and SAR facility improvement.

ID No.	Requirements
97	<b>Medical assistance messages</b>  Relay medical assistance messages, if necessary
98	<b>Liaison with federal agencies</b>  Maintain close liaison with federal agencies to insure compatibility of telecommunications equipment as it pertains to Coast Guard operations.
99	<b>Cooperation with other agencies</b>  Cooperate closely with State and local authorities, Federal agencies, such as DOD, and other nations. This cooperation requires effective, reliable, and interoperable telecommunications connectivity for voice, record, and data information transfer.
100	<b>SAR Coordinator</b>  SAR Coordinator (SC) Organization-Level requirement: Organize and coordinate SAR operation in given region or area.
101	<b>SAR Coordinator</b>  SAR coordinator (SC) Organization-level requirement: Report SAR results to parent command/agency.
102	<b>SAR Coordinator</b>  SAR Coordinator (SC) Organization-Level requirement: Receive reports and request assistance from DOD; other Federal, State, and local customers; as well as the international community.
103	<b>SAR Mission Coordinator</b>  SAR Mission Coordinator (SMC) Organization-Level requirement: Obtain and record pertinent mission data.
104	<b>SAR Mission Coordinator</b>  SAR Mission Coordinator (SMC) Organization-Level requirement: Be constantly aware of the status of all available facilities (primary and secondary).
105	<b>SAR Mission Coordinator</b>  SAR Mission Coordinator (SMC) Organization-Level requirement: Collect/evaluate environmental considerations.

ID No.	Requirements
106	<b>SAR Mission Coordinator (SMC)</b>  SAR Mission Coordinator (SMC) Organization-Level requirement: Provide coordinated search areas to SRUs (including aircraft spacing, endurance...).
107	<b>SAR Mission Coordinator (SMC)</b>  SAR Mission Coordinator (SMC) Organization-Level requirement: Monitor vessel status during non-emergency cases.
108	<b>On Scene Commander</b>  On Scene Commander (OSC) Organization-Level requirements: Maintain operational control and coordination of all SRUs on scene.
109	<b>On Scene Commander</b>  On Scene Commander (OSC) Organization-Level requirements: Communicate with SMC and all SRUs on-scene.
110	<b>On Scene Commander</b>  On Scene Commander (OSC) Organization-Level requirements: Receive and evaluate information from SRUs; maintain "ops normal" reports from A/C.
111	<b>On Scene Commander</b>  On Scene Commander (OSC) Organization-Level requirements: Be able to shift OSC duties, as appropriate.
112	<b>Asset</b>  Asset Level Requirement: SRUs require the capability to pass capabilities/limitations information to the OSC.
113	<b>Asset</b>  Asset Level Requirement: SRUs require the capability to debrief SMC upon mission conclusion and make required "ops normal" reports to OSC.
114	<b>Asset</b>  Asset Level Requirement: RCCs maintain rapid and reliable communications net linking all primary and secondary SAR facilities.

ID No.	Requirements
115	<b>Asset</b>  Asset Level Requirement: RCCs have all communications equipment attached to a multi-channel tape recorder with a timing channel.
116	<b>Asset Communications</b>  Asset Level communications Requirement: Coast Guard shore commands and mobile units to be provided with compatible means of communication with Navy commands and fleet units of comparable size as required to meet responsibilities as one of the Armed Forces.
117	<b>Asset Communications</b>  Asset Level communications Requirement: Operational telephone and voice radio circuits to be continuously monitored by means of tape recorders.
118	<b>Asset Communications</b>
	Communicate in real or near real time with local assets to coordinate non-Coast Guard direct assistance.
119	<b>MILSAT Voice Communications</b>  Requirement for MILSAT voice communications on 110 foot WPBs for coordinated operations with other CG units.
120	<b>Satellite voice communications</b>  Requirement for satellite voice communications from cutters directly to area and district command centers.
121	<b>Real Time Access</b>  Access, in real time, all databases necessary to prosecute case.
122	<b>Rapid communications</b>  Operational Commanders shall have the capability to communicate rapidly with operating units under their control.
123	<b>Own Unit Communications</b>  Provide voice cryptographically covered satellite communications.



<b>ID No.</b>	<b>Requirements</b>
<b>124</b>	<b>Own Unit Communications</b>  Provide teletype cryptographically covered satellite communications circuits.
<b>125</b>	<b>Real Time Communications</b>  Communicate in near real time, in all modes (voice, data, and video), with Coast Guard resources and all appropriate federal, state and local agencies and the maritime public while conducting operations.
<b>126</b>	<b>Portable real-time communications</b>  Provide portable near real-time two way secure communications data system that passes positioning information and short record message to immediate commanders, Coast Guard and LEA aircraft and surface platforms cooperating with them. The system must have an effective range of 100 NM from surface position at sea to a shore station.
<b>127</b>	<b>MILSAT voice</b>  Provide MILSAT voice communications on 110 foot WPBs for coordinated operations with other CG units.
<b>128</b>	<b>Satellite Voice</b>  Provide satellite voice communications from cutters directly to area and district command centers.
<b>129</b>	<b>Control for air operations</b>  Provide control for air operations in support of anti-surface attack operations.
<b>130</b>	<b>Interoperability</b>  Communications systems to be compatible/interoperable with DOD and other law enforcement agencies.
<b>131</b>	<b>Real-time communications with NDSC</b>  Provide real-time communications with the NDBC's data network.
<b>132</b>	<b>Interoperable</b>  Provide interoperability with friendly forces.

ID No.	Requirements
133	<b>Interoperable with C4ISR</b> Provide interoperability with U.S. Navy C4ISR systems.
134	<b>Secure Communications</b> Provide near real time secure communications.
135	<b>Intelligence</b> Provide for the collection, processing and disseminating of intelligence.
136	<b>Intelligence databases</b> Provide access, store, process, manipulate, and cross reference of information from intelligence databases.
137	<b>Tactical information</b> Fuse local tactical information with database information in near real time.
138	<b>Environment</b> All components shall be operable in all weather conditions, day or night.
139	<b>Interface to CGTS</b> Provide an interface to the rest of the CGTS that is transparent to the user. An example might be effective voice communications between a mobile unit at sea and a subject matter specialist at a district office.
140	<b>Information processing systems</b> Provide standard interface for connection to existing/planned information processing equipment for data transfer.
141	<b>Misc.</b> The below listed requirements do not reference back to a higher level requirement.

## **APPENDIX B - Functional Requirements Supported by System Requirements**

This appendix lists the functional requirements with the system requirements that support each functional requirement. Each functional requirement was assessed to determine what is needed to perform that function. Generally, several system requirements are required for each functional requirement.

<b>ID No.</b>	<b>Requirements</b>
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<b>37</b>	<b>Telecomm interoperability with other agencies</b>
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Provide telecommunications interoperability with other agencies, particularly in a secure mode.

**A.4 Communications:**

*Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.*

**B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

**B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

<b>38</b>	<b>Effective C2 support in coastal areas</b>
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Provide effective command and control support in coastal areas and navigable waterways where commercial or recreational traffic exists.

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in*

**A.9 Communications:**

*The system should support communications across all mission areas.*

**39 Long and short range communications**

Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

**A.7 Communications:**

*Provide real-time communications.*

**B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

**B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**C.8 Characteristics:**

*Provide imaging capability.*

**41 Tactical Information network**

Provide an automated tactical information network which is compatible between ships, shore facilities and aircraft (downlink from aircraft to ship/shore).

**A.10 Communications:**

*Be capable of logging into and communicating with data networks.*

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSs, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**42 MEP C2 system**

Develop and institutionalize a more effective command and control system, including supporting databases(s), particularly for large-scale national responses.

**A.10 Communications:**

*Be capable of logging into and communicating with data networks.*

**A.11 Communications:**

*Be capable of providing communications for accessing, searching and querying databases.*

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

**43 Secure communications with other agencies**

Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).

**B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

**B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**45 Monitoring/compliance data**

Provide the capability to collect and disseminate environmental monitoring/compliance data in real-time from/to operating forces and mariners.

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSs, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**A.4 Communications:**

*Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.*

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**46 Share or link aircraft sensors**

Provide the ability to directly share/link aircraft sensors or the information from these sensors with other aircraft, with cutters and with shore stations.

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSs, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**C.5 Characteristics:**

*The system should operate in all Coast Guard mobile resources, such as aircraft, cutters, boats, and vehicles.*

**50 DAMA configuration for MILSATCOM**

MILSATCOM equipped units are to be DAMA configured by 30 Sept 96 to conform to DOD mandated standard.

**C.3 Characteristics:**

*Provide interoperability with DOD C4ISR. (DAMA compatible)*

**51 Share CG LE information with other agencies**

Effectively share CG LE related information with other agencies, including directly with their support systems.

**A.4 Communications:**

*Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.*

**A.9 Communications:**

*The system should support communications across all mission areas.*



**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**52 Bulk data transactions**

Provide the capability to conduct bulk data transactions for both operational and administrative support information with no impact on personnel in terms of network operations and manpower required.

**C.4 Characteristics:**

*Be capable of passing large amounts of data, such as video or graphics files, rapidly.*

**54 Exchange text, data and graphics**

Provide the ability to exchange text, data, and graphics information with other government agencies

**A.4 Communications:**

*Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.*

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**C.8 Characteristics:**

*Provide imaging capability.*

**55 Protected data communications**

Provide reliable, responsive (high speed) and protected data communications between the Operations Support Center and Cutters/Aircraft.

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**56 Secure video-teleconferencing compatibility**

Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).

**B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**C.9 Characteristics:**

*Provide teleconferencing capability.*

**59 Access supporting data**

Requirement for operating units to be able to immediately access accurate supporting data, including Operations Center source information and information available in remote databases (i.e. data about a target or case and METOC data) while operations are in progress.

**A.1 Communications:**

*Provide communications with the INTERNET, on-line services, and Coast Guard Intranet.*

**A.10 Communications:**

*Be capable of logging into and communicating with data networks.*

**A.11 Communications:**

*Be capable of providing communications for accessing, searching and querying databases.*

**60 OSC to OC communications**

Provide a link between the Operational Commander and the On Scene Commander, enabling the exchange of information required to define targets-of-interest versus targets which are not of interest.

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**A.7 Communications:**

*Provide real-time communications.*

**A.9 Communications:**

*The system should support communications across all mission areas.*

**C.2 Characteristics:**

*Provide global communications for command and control of mobile units and administrative traffic.*

**61 All mode communications**

Provide communications in real or near real time, in all modes (voice, data, and video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting counterdrug operations.

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**A.4 Communications:**

*Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.*

**A.7 Communications:**

*Provide real-time communications.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**C.8 Characteristics:**

*Provide imaging capability.*

**62 Data link**

Provide a data link for transmission of sensor, voice, tactical display, and record traffic between the Operational Commander and the On Scene Commander as well as other friendly forces in near real time.

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**65 Communicate with CG resources and agencies**

Provide communications in real or near real time, in all modes (voice, data, and video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting operations.

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSs, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**A.4 Communications:**

*Provide communications with the Coast Guard's customers and partners, and other federal, state, and local agencies.*

**A.7 Communications:**

*Provide real-time communications.*

**66 Off shore voice communications**

Provide two-way voice communications, up to seven hundred nautical miles offshore, between embarked Ice Reconnaissance Detachment (IceRecDet) and the International Ice Patrol Headquarters.

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

**67 Offshore voice and data communications**

Provide two-way communications (voice and data) in real time, up to six hundred miles offshore, between the embarked National Data Buoy Center (NDBC) field team and the NDBC data analysts located at Stennis Space Center, Bay St. Louis, Miss.

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**68 Interoperability with DOD**

Requirement to be interoperable with DOD forces including C4I and intelligence processing systems that are compatible with DOD forces.

**C.3 Characteristics:**

*Provide interoperability with DOD C4ISR. (DAMA compatible)*

**69 Multinational operations**

Requirement to exercise command and control of own unit operations and multinational operations (CG, DOD, NATO, and similar coalitions) using a real time data link geographic/tactical display.

**A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

**A.7 Communications:**

*Provide real-time communications.*

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**70 Military communications**

Requirement to communicate with own service units, DOD resources, NATO forces, and other federal agencies by voice or data, secure and clear in real or near real time.

**A.7 Communications:**

*Provide real-time communications.*

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**C.3 Characteristics:**

*Provide interoperability with DOD C4ISR. (DAMA compatible)*

**72 C2 support**

Provide C2 support for embarked staff without negatively impacting unit's independent communications, command and control functions.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**73 Intelligence communications**

Requirement to collect, process, and disseminate all source intelligence to collection centers/command centers.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**74 Pollution reports**

Requirement to receive reports of possible pollution incidents in near real time, analyze data, and investigate on scene conditions.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**75 MEP response**

Requirement to conduct On Scene Coordinator functions, including determining appropriate response to pollution incidents and coordinating the operations of on scene assets.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**76 C2 for FOSC staff**

Provide C2 support for the FOSC (Federal On Scene Coordinator) staff without negatively impacting unit independent communications, command and control functions.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**77 Aircraft communications with surface units**

Requirement for air assets to be able to provide operational and tactical information to surface LE patrol units

**A.9 Communications:**

*The system should support communications across all mission areas.*

**78 SAR on scene commander**

Requirement to provide the command and control capability to act as Search and Rescue On Scene Commander.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**79 SAR communications support**

Provide SAR communications support for tactical surface, submarine and air units.

**A.9 Communications:**

*The system should support communications across all mission areas.*

**80 Harbor and safety/security zone control**

Requirement to have necessary communications to support harbor and safety/security zone control.

**A.8 Communications:**

*Allow for the automatic routing and delivery of traffic, regardless of content or mode (voice, data, video, or imagery), without human intervention.*

**A.9 Communications:**

*The system should support communications across all mission areas.*

**81 Coordinate MEP activities**

Requirement to coordinate activities of all CG/non-CG organizations responding to a spill incident.

**A.8 Communications:**

*Allow for the automatic routing and delivery of traffic, regardless of content or mode (voice, data, video, or imagery), without human intervention.*

**82 Tactical communications support**

Provide communications support for tactical surface, submarine and air units to support Naval Warfare.

**A.8 Communications:**

*Allow for the automatic routing and delivery of traffic, regardless of content or mode (voice, data, video, or imagery), without human intervention.*



## **83 C-130 communications**

Requirement for C-130s to provide airborne capability to relay command and control communications to strategic forces in support of Naval Warfare.

### **A.8 Communications:**

*Allow for the automatic routing and delivery of traffic, regardless of content or mode (voice, data, video, or imagery), without human intervention.*

## **84 Secure communications**

Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.

### **A.7 Communications:**

*Provide real-time communications.*

### **B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

### **B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

### **B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

### **B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

### **C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

## **85 Communications in lightering zones**

Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local agencies and the maritime public while on-scene in lightering zones.

### **A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSs, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

### **A.6 Communications:**

*Provide communications from any geographic area the Coast Guard may operate in.*

### **A.7 Communications:**

*Provide real-time communications.*

### **C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

### **C.7 Characteristics:**

*Provide voice, data, and video capability.*

## **86 CVS communications**

Requirement to transmit and receive documents/data between on-scene units and command centers in near real time.

### **A.7 Communications:**

*Provide real-time communications.*

## **87 Voice privacy and secure voice capability**

Requirement for a significant increase in voice privacy and secure voice capability.

### **B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

**B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**96 Record SAR record information**

Ability to record information on SAR system efficiency, SAR mission critiques, emergency procedures, survival equipment carried by aircraft and vessels, and SAR facility improvement.

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**99 Cooperation with other agencies**

Cooperate closely with State and local authorities, Federal agencies, such as DOD, and other nations. This cooperation requires effective, reliable, and interoperable telecommunications connectivity for voice, record, and data information transfer.

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**100 SAR Coordinator**

SAR Coordinator (SC) Organization-Level requirement: Organize and coordinate SAR operation in given region or area.

**C.2 Characteristics:**

*Provide global communications for command and control of mobile units and administrative traffic.*

**101 SAR Coordinator**

SAR coordinator (SC) Organization-level requirement: Report SAR results to parent

**C.2 Characteristics:**

*Provide global communications for command and control of mobile units and administrative traffic.*

**102 SAR Coordinator**

SAR Coordinator (SC) Organization-Level requirement: Receive reports and request assistance from DOD; other Federal, State, and local customers; as well as the international community.

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**C.2 Characteristics:**

*Provide global communications for command and control of mobile units and administrative traffic.*

**106 SAR Mission Coordinator (SMC)**

SAR Mission Coordinator (SMC) Organization-Level requirement: Provide coordinated search areas to SRUs (including aircraft spacing, endurance...).

**A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

**C.5 Characteristics:**

*The system should operate in all Coast Guard mobile resources, such as aircraft, cutters, boats, and vehicles.*

## **108            On Scene Commander**

On Scene Commander (OSC) Organization-Level requirements: Maintain operational control and coordination of all SRUs on scene.

### **A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

## **109            On Scene Commander**

On Scene Commander (OSC) Organization-Level requirements: Communicate with SMC and all SRUs on-scene.

### **A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

## **110            On Scene Commander**

On Scene Commander (OSC) Organization-Level requirements: Receive and evaluate information from SRUs; maintain "ops normal" reports from A/C.

### **A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

## **114            Asset**

Asset Level Requirement: RCCs maintain rapid and reliable communications net linking all primary and secondary SAR facilities.

### **A.2 Communications:**

*Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSS, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.*

### **A.7 Communications:**

*Provide real-time communications.*

## **116            Asset Communications**

Asset Level communications Requirement: Coast Guard shore commands and mobile units to be provided with compatible means of communication with Navy commands and fleet units of comparable size as required to meet responsibilities as one of the Armed Forces.

### **C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

## **118            Asset Communications**

Communicate in real or near real time with local assets to coordinate non-Coast Guard direct assistance.

### **A.7 Communications:**

*Provide real-time communications.*

## **119            MILSAT Voice Communications**

Requirement for MILSAT voice communications on 110 foot WPBs for coordinated operations with other CG units.

### **C.3 Characteristics:**

*Provide interoperability with DOD C4ISR. (DAMA compatible)*

## **120            Satellite voice communications**

Requirement for satellite voice communications from cutters directly to area and district command centers.

### **C.2 Characteristics:**

*Provide global communications for command and control of mobile units and administrative traffic.*

## **121            Real Time Access**

Access, in real time, all databases necessary to prosecute case.

### **A.7 Communications:**

*Provide real-time communications.*

## **122            Rapid communications**

Operational Commanders shall have the capability to communicate rapidly with operating units under their control.

### **A.7 Communications:**

*Provide real-time communications.*

## **123            Own Unit Communications**

Provide voice cryptographically covered satellite communications.

### **B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

### **B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

### **B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

### **B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

## **124            Own Unit Communications**

Provide teletype cryptographically covered satellite communications circuits.

### **B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

### **B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**125 Real Time Communications**

Communicate in near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state and local agencies and the maritime public while conducting operations.

**A.7 Communications:**

*Provide real-time communications.*

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**126 Portable real-time communications**

Provide portable near real-time two way secure communications data system that passes positioning information and short record message to immediate commanders, Coast Guard and LEA aircraft and surface platforms cooperating with them. The system must have an effective range of 100 NM from surface position at sea to a shore station.

**A.7 Communications:**

*Provide real-time communications.*

**127 MILSAT voice**

Provide MILSAT voice communications on 110 foot WPBs for coordinated operations with other CG units.

**C.3 Characteristics:**

*Provide interoperability with DOD C4ISR. (DAMA compatible)*



**128            Satellite Voice**

Provide satellite voice communications from cutters directly to area and district command centers.

**C.7 Characteristics:**

*Provide voice, data, and video capability.*

**130            Interoperability**

Communications systems to be compatible/interoperable with DOD and other law enforcement agencies.

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**131            Real-Time communications with NDSC**

Provide real-time communications with the NDBC's data network.

**A.7 Communications:**

*Provide real-time communications.*

**132            Interoperable**

Provide interoperability with friendly forces.

**C.1 Characteristics:**

*Provide interoperability with other agencies and services.*

**133            Interoperable with C4ISR**

Provide interoperability with U.S. Navy C4ISR systems.

**C.3 Characteristics:**

*Provide interoperability with DOD C4ISR. (DAMA compatible)*

**134            Secure Communications**

Provide near real time secure communications.

**A.7 Communications:**

*Provide real-time communications.*

**B.1 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the TOP SECRET level.*

**B.2 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the SECRET level.*

**B.3 Secure Communications:**

*Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.*

**B.4 Secure Communications:**

*Provide for the transmission and reception of sensitive but unclassified information.*

**136 Intelligence databases**

Provide access, store, process, manipulate and cross reference of information from intelligence databases.

**A.11 Communications:**

*Be capable of providing communications for accessing, searching and querying databases.*

**137 Tactical information**

Fuse local tactical information with database information in near real time.

**A.11 Communications:**

*Be capable of providing communications for accessing, searching and querying databases.*

## **139            Interface to CGTS**

Provide an interface to the rest of the CGTS that is transparent to the user. An example might be effective voice communications between a mobile unit at sea and a subject matter specialist at a district office.

### **A.3 Communications:**

*Provide remote access to the system, through dial-up lines for voice and data.*

## **140            Information processing systems**

Provide standard interface for connection to existing/planned information processing equipment for data transfer.

### **C.6 Characteristics:**

*Provide standard interface for connection to existing/planned information processing equipment for data transfer.*

## **141            Misc.**

The below listed requirements do not reference back to a higher level requirement.

### **A.5 Communications:**

*The system must be available \_\_\_\_\_(99.95) percent of the time.*

### **D.1 Maintainability:**

*The system must be maintainable by Coast Guard maintenance personnel while underway in ships, at air stations, and at other maintenance facilities.*

### **D.2 Maintainability:**

*The system should provide self-diagnostics.*

### **E.1 Recording and Retrieval:**

*Maintain a record of user's time (metered services).*

## **APPENDIX C - System Requirements Showing Supported Functional Requirements**

This appendix lists the system requirements with the functional requirements that they support. Each system requirement may support more than one functional requirement.

**A.1 Communications: Provide communications with the Internet, on-line services, and the Coast Guard Intranet.**

SEQ_NO	OR_TITLE	OR_Description
59	Access supporting data	Requirement for operating units to be able to immediately access accurate supporting data, including Operations Center source information and information available in remote databases (i.e. data about a target or case and METOC data) while operations are in progress..

**A.2 Communications: Provide communications with Coast Guard facilities, such as activities, groups, sections, AIRSTA's, MSOs, VTSs, COTPs, stations, aids to navigation teams, port security units, cutters, boats, aircraft, selected vehicles, and detached personnel.**

SEQ_NO	OR_TITLE	OR_Description
61	All mode communications	Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting counterdrug operations.
60	OSC to OC communications	Provide a link between the Operational Commander and the On Scene Commander, enabling the exchange of information required to define targets-of-interest versus targets which are not of interest.
45	Monitoring/compliance data	Provide the capability to collect and disseminate environmental monitoring/compliance data in real-time from/to operating forces and mariners.
46	Share or link aircraft sensors	Provide the ability to directly share/link aircraft sensors or the

	<i>information from these sensors with other aircraft, with cutters and with shore stations.</i>
<i>41 Tactical Information network</i>	<i>Provide an automated tactical information network that is compatible between ships, shore facilities and aircraft (downlink from aircraft to ship/shore).</i>
<i>85 Communications in lightering zones</i>	<i>Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local agencies and the maritime public while on-scene in lightering zones.</i>
<i>65 Communicate with CG resources and agencies</i>	<i>Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting operations.</i>
<i>114 Asset</i>	<i>Asset Level Requirement: RCCs maintain rapid and reliable communications net linking all primary and secondary SAR facilities.</i>
<i>109 On Scene Commander</i>	<i>On Scene Commander (OSC) Organization-Level requirements: Communicate with SMC and all SRUs on-scene.</i>
<i>108 On Scene Commander</i>	<i>On Scene Commander (OSC) Organization-Level requirements: Maintain operational control and coordination of all SRUs on scene.</i>
<i>110 On Scene Commander</i>	<i>On Scene Commander (OSC) Organization-Level requirements: Receive and evaluate information from SRUs; maintain "ops normal." reports from A/C.</i>

106 SAR Mission Coordinator (SMC)	SAR Mission Coordinator (SMC) <i>Organization-Level requirement:</i> <i>Provide coordinated search areas to SRUs (including aircraft spacing, endurance...).</i>
96 Record SAR record information	<i>Ability to record information on SAR system efficiency, SAR mission critiques, emergency procedures, survival equipment carried by aircraft and vessels, and SAR facility improvement.</i>

**A.3 Communications:**    **Provide remote access to the system, through dial-up lines for voice and data.**

SEQ_NO	OR_TITLE	OR_Description
139	Interface to CGTS	<i>Provide an interface to the rest of the CGTS that is transparent to the user. An example might be effective voice communications between a mobile unit at sea and a subject matter specialist at a district office.</i>

**A.4 Communications: Provide communications with the Coast Guard’s customers and partners, and other federal, state, and local agencies.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
37	<i>Telecomm interoperability with other agencies</i>	<i>Provide telecommunications interoperability with other agencies, particularly in a secure mode.</i>
45	<i>Monitoring/compliance data</i>	<i>Provide the capability to collect and disseminate environmental monitoring/compliance data in real-time from/to operating forces and mariners.</i>
51	<i>Share CG LE information with other agencies</i>	<i>Effectively share CG LE related information with other agencies, including directly with their support systems.</i>
54	<i>Exchange text, data and graphics</i>	<i>Provide the ability to exchange text, data and graphics information with other government agencies</i>
61	<i>All mode communications</i>	<i>Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting counterdrug operations.</i>
65	<i>Communicate with CG resources and agencies</i>	<i>Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting operations.</i>

**A.5 Communications: The system must be available 99.95 percent of the time.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
141	<i>Misc.</i>	<i>This requirements does not</i>



*reference back to a functional requirement.*

**A.6 Communications: Provide communications from any geographic area the Coast Guard may operate in.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
38	<i>Effective C2 support in coastal areas</i>	<i>Provide effective command and control support in coastal areas and navigable waterways where commercial or recreational traffic exists.</i>
39	<i>Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.</i>
42	<i>MEP C2 system</i>	<i>Develop and institutionalize a more effective command and control system, including supporting databases(s), particularly for large-scale national responses.</i>
45	<i>Monitoring/compliance data</i>	<i>Provide the capability to collect and disseminate environmental monitoring/compliance data in real-time from/to operating forces and mariners.</i>
66	<i>Off shore voice communications</i>	<i>Provide two-way voice communications, up to seven hundred nautical miles offshore, between embarked Ice Reconnaissance Detachment (IceRecDet) and the International Ice Patrol Headquarters.</i>
67	<i>Offshore voice and data</i>	<i>Provide two-way communications</i>

<i>communications</i>	<i>(voice and data) in real time, up to six hundred miles offshore, between the embarked National Data Buoy Center (NDBC) field team and the NDBC data analysts located at Stennis Space Center, Bay St. Louis, Miss.</i>
69 <i>Multinational operations</i>	<i>Requirement to exercise command and control of own unit operations and multinational operations (CG, DOD, NATO, and similar coalitions) using a real time data link geographic/tactical display.</i>
85 <i>Communications in lightering zones</i>	<i>Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local agencies and the maritime public while on-scene in lightering zones.</i>

**A.7 Communications: Provide real-time communications.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
39	<i>Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.</i>
60	<i>OSC to OC communications</i>	<i>Provide a link between the Operational Commander and the On Scene Commander, enabling the exchange of information required to define targets-of-interest versus targets which are not of interest.</i>
61	<i>All mode communications</i>	<i>Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal,</i>

	<i>state, and local agencies and the maritime public while conducting counterdrug operations.</i>
<i>65 Communicate with CG resources and agencies</i>	<i>Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting operations.</i>
<i>69 Multinational operations</i>	<i>Requirement to exercise command and control of own unit operations and multinational operations (CG, DOD, NATO, and similar coalitions) using a real time data link geographic/tactical display.</i>
<i>70 Military communications</i>	<i>Requirement to communicate with own service units, DOD resources, NATO forces, and other federal agencies by voice or data, secure and clear in real or near real time.</i>
<i>84 Secure communications</i>	<i>Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.</i>
<i>85 Communications in lightering zones</i>	<i>Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local agencies and the maritime public while on-scene in lightering zones.</i>
<i>86 CVS communications</i>	<i>Requirement to transmit and receive documents/data between on-scene units and command centers in near real time.</i>
<i>114 Asset</i>	<i>Asset Level Requirement: RCCs maintain rapid and reliable communications net linking all primary and secondary SAR facilities.</i>

<i>118 Asset Communications</i>	<i>Communicate in real or near real time with local assets to coordinate non-Coast Guard direct assistance.</i>
<i>121 Real Time Access</i>	<i>Access, in real time, all databases necessary to prosecute case.</i>
<i>122 Rapid communications</i>	<i>Operational Commanders shall have the capability to communicate rapidly with operating units under their control.</i>
<i>125 Real Time Communications</i>	<i>Communicate in near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state and local agencies and the maritime public while conducting operations.</i>
<i>126 Portable real-time communications</i>	<i>Provide portable near real-time two way secure communications data system that passes positioning information and short record message to immediate commanders, Coast Guard and LEA aircraft and surface platforms cooperating with them. The system must have an effective range of 100 NM from surface position at sea to a shore station.</i>
<i>131 Real-Time communications with NDSC</i>	<i>Provide real-time communications with the NDBC's data network.</i>
<i>134 Secure Communications</i>	<i>Provide near real time secure communications.</i>

**A.8 Communications:** **Allow for the automatic routing and delivery of traffic, regardless of content or mode (voice, data, video, or imagery), without human intervention.**

<b>SEQ_NO OR_TITLE</b>	<b>OR_Description</b>
<i>80 Harbor and safety/security zone control</i>	<i>Requirement to have necessary communications to support harbor and safety/security zone control.</i>
<i>81 Coordinate MEP activities</i>	<i>Requirement to coordinate activities of all CG/non-CG organizations</i>

*responding to a spill incident.*

- |   |   |
|---|---|
| 82 <i>Tactical communications support</i> | <i>Provide communications support for tactical surface, submarine and air units to support Naval Warfare.</i>   |
| 83 <i>C-130 communications</i>            | <i>Requirement for C-130s to provide airborne capability to relay command and control communications to strategic forces in support of Naval Warfare.</i> |

**A.9 Communications:    The system should support communications across all mission areas.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
38	<i>Effective C2 support in coastal areas</i>	<i>Provide effective command and control support in coastal areas and navigable waterways where commercial or recreational traffic exists.</i>
51	<i>Share CG LE information with other agencies</i>	<i>Effectively share CG LE related information with other agencies, including directly with their support systems.</i>
60	<i>OSC to OC communications</i>	<i>Provide a link between the Operational Commander and the On Scene Commander, enabling the exchange of information required to define targets-of-interest versus targets which are not of interest.</i>
72	<i>C2 support</i>	<i>Provide C2 support for embarked staff without negatively impacting unit's independent communications, command and control functions.</i>
73	<i>Intelligence communications</i>	<i>Requirement to collect, process, and disseminate all source intelligence to collection centers/command centers.</i>
74	<i>Pollution reports</i>	<i>Requirement to receive reports of possible pollution incidents in near real time, analyze data, and investigate on scene conditions.</i>
75	<i>MEP response</i>	<i>Requirement to conduct On Scene Coordinator functions, including determining appropriate response to pollution incidents and coordinating the operations of on scene assets.</i>
76	<i>C2 for FOSC staff</i>	<i>Provide C2 support for the FOSC (Federal On Scene Coordinator) staff without negatively impacting unit</i>

*independent communications,  
command and control functions.*

- |   |   |
|---|---|
| 77 Aircraft communications with surface units | <i>Requirement for air assets to be able to provide operational and tactical information to surface LE patrol units</i> |
| 78 SAR on scene commander                     | <i>Requirement to provide the command and control capability to act as Search and Rescue On Scene Commander.</i>        |
| 79 SAR communications support                 | <i>Provide SAR communications support for tactical surface, submarine and air units.</i>                                |
| 80 Harbor and safety/security zone control    | <i>Requirement to have necessary communications to support harbor and safety/security zone control.</i>                 |

**A.10 Communications: Be capable of logging into and communicating with data networks.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
41	<i>Tactical Information network</i>	<i>Provide an automated tactical information network that is compatible between ships, shore facilities and aircraft (downlink from aircraft to ship/shore).</i>
42	<i>MEP C2 system</i>	<i>Develop and institutionalize a more effective command and control system, including supporting databases(s), particularly for large-scale national responses.</i>
59	<i>Access supporting data</i>	<i>Requirement for operating units to be able to immediately access accurate supporting data, including Operations Center source information and information available in remote databases (i.e. data about a target or case and METOC data) while operations are in progress..</i>

**A.11 Communications: Provide communications for accessing, searching and**

**querying databases.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
42	<i>MEP C2 system</i>	<i>Develop and institutionalize a more effective command and control system, including supporting databases(s), particularly for large-scale national responses.</i>
59	<i>Access supporting data</i>	<i>Requirement for operating units to be able to immediately access accurate supporting data, including Operations Center source information and information available in remote databases (i.e. data about a target or case and METOC data) while operations are in progress..</i>
136	<i>Intelligence databases</i>	<i>Provide access, store, process, manipulate and cross reference of information from intelligence databases.</i>
137	<i>Tactical information</i>	<i>Fuse local tactical information with database information in near real time.</i>



## B.1 Secure

**Communications:** **Provide for the transmission and reception of encrypted information up to the TOP SECRET level.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
37	<i>Telecomm interoperability with other agencies</i>	<i>Provide telecommunications interoperability with other agencies, particularly in a secure mode.</i>
39	<i>Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.</i>
43	<i>Secure communications with other agencies</i>	<i>Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).</i>
84	<i>Secure communications</i>	<i>Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.</i>
87	<i>Voice privacy and secure voice capability</i>	<i>Requirement for a significant increase in voice privacy and secure voice capability.</i>
123	<i>Own Unit Communications</i>	<i>Provide voice cryptographically covered satellite communications.</i>
124	<i>Own Unit Communications</i>	<i>Provide teletype cryptographically covered satellite communications circuits.</i>
134	<i>Secure Communications</i>	<i>Provide near real time secure</i>

*communications.*

## B.2 Secure

**Communications: Provide for the transmission and reception of encrypted information up to the SECRET level.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
37	<i>Telecomm interoperability with other agencies</i>	<i>Provide telecommunications interoperability with other agencies, particularly in a secure mode.</i>
39	<i>Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.</i>
43	<i>Secure communications with other agencies</i>	<i>Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).</i>
56	<i>Secure video-teleconferencing compatibility</i>	<i>Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).</i>
84	<i>Secure communications</i>	<i>Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.</i>
87	<i>Voice privacy and secure voice capability</i>	<i>Requirement for a significant increase in voice privacy and secure voice capability.</i>
123	<i>Own Unit Communications</i>	<i>Provide voice cryptographically covered satellite communications.</i>

124 *Own Unit Communications*      *Provide teletype cryptographically covered satellite communications circuits.*

134 *Secure Communications*      *Provide near real time secure communications.*

### B.3 Secure

#### Communications:

**Provide for the transmission and reception of encrypted information up to the CONFIDENTIAL level.**

SEQ_NO	OR_TITLE	OR_Description
37	<i>Telecomm interoperability with other agencies</i>	<i>Provide telecommunications interoperability with other agencies, particularly in a secure mode.</i>
39	<i>Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.</i>
43	<i>Secure communications with other agencies</i>	<i>Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).</i>
56	<i>Secure video-teleconferencing compatibility</i>	<i>Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).</i>
84	<i>Secure communications</i>	<i>Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.</i>
87	<i>Voice privacy and secure voice capability</i>	<i>Requirement for a significant increase in voice privacy and secure voice</i>

*capability.*

*123 Own Unit Communications Provide voice cryptographically covered satellite communications.*

*124 Own Unit Communications Provide teletype cryptographically covered satellite communications circuits.*

*134 Secure Communications Provide near real time secure communications.*

**B.4 Secure Communications:** **Provide for the transmission and reception of sensitive but unclassified information.**

<b>SEQ_NO OR_TITLE</b>	<b>OR_Description</b>
<i>37 Telecomm interoperability with other agencies</i>	<i>Provide telecommunications interoperability with other agencies, particularly in a secure mode.</i>
<i>39 Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.</i>
<i>43 Secure communications with other agencies</i>	<i>Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).</i>
<i>55 Protected data communications</i>	<i>Provide reliable, responsive (high speed) and protected data communications between the Operations Support Center and Cutters/Aircraft.</i>

<i>56 Secure video-teleconferencing compatibility</i>	<i>Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).</i>
<i>84 Secure communications</i>	<i>Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.</i>
<i>87 Voice privacy and secure voice capability</i>	<i>Requirement for a significant increase in voice privacy and secure voice capability.</i>
<i>123 Own Unit Communications</i>	<i>Provide voice cryptographically covered satellite communications.</i>
<i>124 Own Unit Communications</i>	<i>Provide teletype cryptographically covered satellite communications circuits.</i>
<i>134 Secure Communications</i>	<i>Provide near real time secure communications.</i>

**C.1 Capabilities: Provide interoperability with other agencies and services.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
43	<i>Secure communications with other agencies</i>	<i>Provide voice privacy and secure voice capability to facilitate communications with external agencies/DOD (Applies to the problem of compatible secure communications with external agencies and the DOD services).</i>
51	<i>Share CG LE information with other agencies</i>	<i>Effectively share CG LE related information with other agencies, including directly with their support systems.</i>
54	<i>Exchange text, data and graphics</i>	<i>Provide the ability to exchange text, data and graphics information with other government agencies</i>
56	<i>Secure video-teleconferencing compatibility</i>	<i>Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).</i>
69	<i>Multinational operations</i>	<i>Requirement to exercise command and control of own unit operations and multinational operations (CG, DOD, NATO, and similar coalitions) using a real time data link geographic/tactical display.</i>
70	<i>Military communications</i>	<i>Requirement to communicate with own service units, DOD resources, NATO forces, and other federal agencies by voice or data, secure and clear in real or near real time.</i>
84	<i>Secure communications</i>	<i>Requirement to conduct secure communications with Coast Guard assets and other Federal, State, and local agencies.</i>
85	<i>Communications in lightering zones</i>	<i>Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local</i>

	<i>agencies and the maritime public while on-scene in lightering zones.</i>
<i>99 Cooperation with other agencies</i>	<i>Cooperate closely with State and local authorities, Federal agencies, such as DOD, and other nations. This cooperation requires effective, reliable, and interoperable telecommunications connectivity for voice, record, and data information transfer.</i>
<i>102 SAR Coordinator</i>	<i>SAR Coordinator (SC) Organization-Level requirement: Receive reports and request assistance from DOD; other Federal, State, and local customers; as well as the international community.</i>
<i>116 Asset Communications</i>	<i>Asset Level communications Requirement: Coast Guard shore commands and mobile units to be provided with compatible means of communication with Navy commands and fleet units of comparable size as required to meet responsibilities as one of the Armed Forces.</i>
<i>130 Interoperability</i>	<i>Communications systems to be compatible/interoperable with DOD and other law enforcement agencies.</i>
<i>132 Interoperable</i>	<i>Provide interoperability with friendly forces.</i>

**C.2 Capabilities:**                      **Provide global communications for command and control of mobile units and administrative traffic.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
60	<i>OSC to OC communications</i>	<i>Provide a link between the Operational Commander and the On Scene Commander, enabling the exchange of information required to define targets-of-interest versus targets which are not of interest.</i>
100	<i>SAR Coordinator</i>	<i>SAR Coordinator (SC) Organization-Level requirement: Organize and coordinate SAR operation in given region or area.</i>
101	<i>SAR Coordinator</i>	<i>SAR coordinator (SC) Organization-level requirement: Report SAR results to parent command/agency.</i>
102	<i>SAR Coordinator</i>	<i>SAR Coordinator (SC) Organization-Level requirement: Receive reports and request assistance from DOD; other Federal, State, and local customers; as well as the international community.</i>
120	<i>Satellite voice communications</i>	<i>Requirement for satellite voice communications from cutters directly to area and district command centers.</i>

**C.3 Capabilities:**                      **Provide interoperability with DOD Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR). (Demand Assigned Multiple-Access (DAMA) compatible)**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
50	<i>DAMA configuration for MILSATCOM</i>	<i>MILSATCOM equipped units are to be DAMA configured by 30 Sept 96 to conform to DOD mandated standard.</i>
68	<i>Interoperability with DOD</i>	<i>Requirement to be interoperable with DOD forces including C4I and intelligence processing systems that are compatible with DOD forces.</i>



<i>70 Military communications</i>	<i>Requirement to communicate with own service units, DOD resources, NATO forces, and other federal agencies by voice or data, secure and clear in real or near real time.</i>
<i>119 MILSAT Voice Communications</i>	<i>Requirement for MILSAT voice communications on 110 foot WPBs for coordinated operations with other CG units.</i>
<i>127 MILSAT voice</i>	<i>Provide MILSAT voice communications on 110 foot WPBs for coordinated operations with other CG units.</i>
<i>133 Interoperable with C4ISR</i>	<i>Provide interoperability with U.S. Navy C4ISR systems.</i>

**C.4 Capabilities:** **Be capable of passing large amounts of data, such as video or graphics files, rapidly.**

<b>SEQ_NO OR_TITLE</b>	<b>OR_Description</b>
<i>52 Bulk data transactions</i>	<i>Provide the capability to conduct bulk data transactions for both operational and administrative support information with no impact on personnel in terms of network operations and manpower required.</i>

**C.5 Capabilities:** **The system should operate in all Coast Guard mobile resources, such as aircraft, cutters, boats, and vehicles.**

<b>SEQ_NO OR_TITLE</b>	<b>OR_Description</b>
<i>46 Share or link aircraft sensors</i>	<i>Provide the ability to directly share/link aircraft sensors or the information from these sensors with other aircraft, with cutters and with shore stations.</i>
<i>106 SAR Mission Coordinator (SMC)</i>	<i>SAR Mission Coordinator (SMC) Organization-Level requirement: Provide coordinated search areas to SRUs (including aircraft spacing, endurance...).</i>

**C.6 Capabilities:**                    **Provide standard interface for connection to existing/planned information processing equipment for data transfer.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
140	Information processing systems	Provide standard interface for connection to existing/planned information processing equipment for data transfer.

**C.7 Capabilities:**                    **Provide voice, data, and video capability.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
39	Long and short range communications	Provide law enforcement cutters with an installed near real time satellite two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.
45	Monitoring/compliance data	Provide the capability to collect and disseminate environmental monitoring/compliance data in real-time from/to operating forces and mariners.
54	Exchange text, data and graphics	Provide the ability to exchange text, data and graphics information with other government agencies
55	Protected data communications	Provide reliable, responsive (high speed) and protected data communications between the Operations Support Center and Cutters/Aircraft.
61	All mode communications	Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting counterdrug operations.

62 <i>Data link</i>	<i>Provide a data link for transmission of sensor, voice, tactical display, and record traffic between the Operational Commander and the On Scene Commander as well as other friendly forces in near real time.</i>
67 <i>Offshore voice and data communications</i>	<i>Provide two-way communications (voice and data) in real time, up to six hundred miles offshore, between the embarked National Data Buoy Center (NDBC) field team and the NDBC data analysts located at Stennis Space Center, Bay St. Louis, Miss.</i>
85 <i>Communications in lightering zones</i>	<i>Requirement to communicate in near real time, in voice, data, and video modes, with Coast Guard resources and other Federal, State and local agencies and the maritime public while on-scene in lightering zones.</i>
99 <i>Cooperation with other agencies</i>	<i>Cooperate closely with State and local authorities, Federal agencies, such as DOD, and other nations. This cooperation requires effective, reliable, and interoperable telecommunications connectivity for voice, record, and data information transfer.</i>
125 <i>Real Time Communications</i>	<i>Communicate in near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state and local agencies and the maritime public while conducting operations.</i>
128 <i>Satellite Voice</i>	<i>Provide satellite voice communications from cutters directly to area and district command centers.</i>

**C.8 Capabilities: Provide imaging capability.**

<b>SEQ_NO</b>	<b>OR_TITLE</b>	<b>OR_Description</b>
39	<i>Long and short range communications</i>	<i>Provide law enforcement cutters with an installed near real time satellite</i>

*two-way secure voice and near real-time data/imaging communications system as the primary source for long/short range communications. The system should present a low probability of detection/interception by commercial direction finding equipment.*

*54 Exchange text, data and graphics*

*Provide the ability to exchange text, data and graphics information with other government agencies*

*61 All mode communications*

*Provide communications in real or near real time, in all modes (voice, data, video), with Coast Guard resources and all appropriate federal, state, and local agencies and the maritime public while conducting counterdrug operations.*

**C.9 Capabilities: Provide teleconferencing capability.**

**SEQ\_NO OR\_TITLE**

**OR\_Description**

*56 Secure video-teleconferencing compatibility*

*Provide secure video-teleconferencing compatibility with DOD and other government agencies (GENSER only).*

**D.1 Maintainability: The system must be maintainable by Coast Guard maintenance personnel while underway in ships. Coast Guard or contractor personnel may be used at other maintenance facilities.**

**SEQ\_NO OR\_TITLE**

**OR\_Description**

*141 Misc.*

*The below listed requirements do not reference back to a higher level requirement.*

**D.2 Maintainability: The system should provide self-diagnostics.**

**SEQ\_NO OR\_TITLE**

**OR\_Description**

*141 Misc.*

*The below listed requirements do not reference back to a higher level requirement.*

**E.1 Recording and  
Retrieval:**

**Maintain a record of user's time (metered services).**

**SEQ\_NO OR\_TITLE**

**OR\_Description**

*141 Misc.*

*This requirements does not  
reference back to a functional  
requirement.*

## **APPENDIX D - Mission Essential Applications**

## Appendix D – Mission Essential Applications

The following matrix (GFI) shows the requirements for Mission Essential Applications (MEA) on board Coast Guard afloat units equal to or longer than 65 feet.

7-Apr-98			SCDC MEA Requirements Matrix												
Validated: 06Mar98 by G-OCC/G-OCU															
			W H E C	W M E C	W A G B	W T G B	W P B	W Y T L	W L B	W L M	W L I	W L C	W L R	W L X	
MEA	ACONYMN DEFINITION	Sponsor													
AAPS	Automated Aid Positoning System	OPN				x	x	x	?	x	x	x	x		
AFTS	Automated Funds Transfer System	CFS													
AIM	Accountable Item Management	SLS													
AMRAP	Amver Maritime Relations Awards Processing	OCC													
AMVER	Automated Mutual-Assistance Vessel Rescue Program	OCC													
AOPS / BOAT	Abstract of Operations	OCC	x	x	x	x	x	x	x	x	x	x	x		
ARMS	Automated Requisition Management System	SLS													
ATONIS2	Aids to Navigation Info System II	OCC				x	x	x	?	x	x	x	x		
ATONIX	Aids to Navigation Info System Transfer	OCC													
CASP	Computer Assisted Search Planning	OCC													
CATS	Collection Actions Tracking System	MLCPAC(lc)													
CECAD	Civil Engineering Aided Design	SEC													
CEDS	Civil Engineering Data System	SEC													
CGID	Correspondence Courses	WR													
CMPlus	Configuration Management Unit Level System	SLS	x	x	x	x	x	x	x	x	x	x	x	x	
CWDB	Course Writers Data Base (RTC Yorktown)	WR													
FMIS	Facilities Management Information System	OCC													
HMS	Housing Management Information System	WPW													
IBUDS	Integrated Budget Development System	CFS													
LAWS	Legal Automated Workstation System	LPD													
LEIS II	Law Enforcement Information System II	OPL	x	x	x	x	x		x						
LFPS	LUFS File Processing System	CFS													
LOIS2	Loran Operations Information System	OCC													
LUFS	Large Unit Financial System	CFS	x	x	x	x	x	x	x	x	x	x	x	x	
MMLD	Merchant Marine Documents and Licensing	MIR													
MSIS	Marine Safety Information System	MRI													
PDS	Personnel Decision System	WR													
SABR	State of Alaska Boating Registration	OPB													
SARMIS II	Search and Rescue Management Information	OCC													
SDAI	Source Data Automation	HRSC													
STAR	Standard Automated Requisitioning System	SLS	x	x	x	x	x	x	x	x	x	x	x	x	
TAV	Total Asset Visibility	SLS													
WWW Server Internet	CG World Wide Web Internet server	SA													
WWW Server Intranet	CG World Wide Web Intranet server	SA													
ZOO	Naval Engineering Integrated Data Base	MLCPAC(vad)													

